

Amendments to the Claims

The listing of claims will replace all prior versions and listings of claims in the subject application:

Claims 1-20 (Canceled)

Claim 21 (New): A method for producing chromate comprising the steps of:
decomposing chromite ore and obtaining a mixture of potassium hydroxide, potassium chromate, and ferrous residue after reacting chromite ore with an oxidant in molten salt or in aqueous solution of potassium hydroxide, wherein weight of the potassium hydroxide is two to eight times as weight of the chromite ore; amount of the oxidant is equal to or above stoichiometric amount for decomposing chromite ore; water in the reaction is in a range from 0 to 50% by weight of total amount of reactants; reaction temperature is in a range of from 200 to 450 °C; reaction time is in a range of from 1 to 20 hours, and chromium content of ferrous residue is below 0.5% by weight, leaching the mixture with an aqueous solution of potassium hydroxide with a concentration ranged from 0 to 30% by weight, and obtaining a slurry having an potassium hydroxide content of 30% to 70% by weight, and separating the leaching slurry and obtaining, respectively, a primary potassium chromate product, ferrous residue, and potassium hydroxide liquor, wherein recovery rate of chromium approaches 100%.

Claim 22 (New): The method for producing chromate as claimed in Claim 21, further comprising the steps of

purifying the primary chromate products to manufacture pure chromate crystal,
which further comprises the steps of

dissolving the primary chromate products in an aqueous solution and obtaining a
chromate aqueous solution,

adjusting pH value of the chromate aqueous solution to be in a range of from 3 to
9 with an acidifying agent, filtering out the precipitates, and obtaining a pure chromate
aqueous solution;

heating the pure chromate aqueous solution to evaporate the water and
obtaining pure chromate crystal after crystallizing, filtering, and drying mother liquor.

Claim 23 (New): The method for producing chromate as claimed in Claim 21,
wherein the said oxidant is air, oxygen, potassium nitrite, potassium peroxide, or a
mixture thereof.

Claim 24 (New): The method for producing chromate as claimed in Claim 21,
wherein the potassium hydroxide comprises potassium hydroxide recycled from the
potassium hydroxide liquor obtained from the step of separating the leaching slurry .

Claim 25 (New): The method for producing chromate as claimed in Claim 21,
wherein potassium hydroxide aqueous solution obtained from the potassium hydroxide
liquor after separating the leaching slurry is recycled to decompose the chromite ore.

Claim 26 (New): The method for producing chromate as claimed in Claim 22, wherein the aqueous solution used to dissolve the primary chromate products is a potassium hydroxide aqueous solution with a concentration ranged from 0 to 20% by weight.

Claim 27 (New): The method for producing chromate as claimed in Claim 22, wherein the acidifying agent is an inorganic acid, an acidic gas, chromium anhydride, potassium dichromate, potassium bicarbonate, or potassium bisulfate; the inorganic acid is sulfuric acid, hydrochloric acid, or nitric acid; the acidic gas is carbon dioxide or sulfur dioxide.

Claim 28 (New): The method for producing chromate as claimed in Claim 22, wherein the aqueous solution obtained as the mother liquor is recycled to dissolve the primary chromate product.